Determinants of health care seeking for childhood illnesses in Nairobi slums

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Summary   The practice of appropriate health seeking has a great potential to reduce the occurrence of severe and life-threatening child illnesses. We assessed the influence of socio-demographic, economic and disease-related factors in health care seeking for child illnesses among slum dwellers of Nairobi, Kenya. A survey round of the Nairobi Urban Demographic Surveillance System (NUDSS) generated information on 2-week child morbidity, illness symptoms, perceived illness severity and use of modern health services. During this round of data collection, interviewers visited a total of 15 174 households, where 3015 children younger than 5 years lived. Of the 999 (33.1%) children who were reported to have been sick, medical care of some sort was sought for 604 (60.5%). Lack of finances (49.6%) and a perception that the illness was not serious (28.1%) were the main reasons given for failure to seek health care outside the home. Health care seeking was most common for sick children in the youngest age group (0–11 months). Caretakers sought medical care more frequently for diarrhoea symptoms than for coughing and even more so when the diarrhoea was associated with fever. Perception of illness severity was strongly associated with health care seeking. Household income was significantly associated with health care seeking up to certain threshold levels, above which its effects stabilized. Improving caretaker skills to recognize danger signs in child illnesses may enhance health-seeking behaviour. Integrated Management of Child Illnesses (IMCI) programmes must be accessible free of charge to the urban poor in order to increase health care seeking and bring about improvements in child survival.

keywords slums, health care, utilization, children, Kenya

Introduction

According to a report from the United Nations Human Settlements Program (2003), if current trends continue, within 30 years one in three people in the world will live in urban informal settlements – commonly known as slums – which are characterized by overcrowding, lack of basic infrastructure, inadequate public services, substandard sanitation, and widespread violence and insecurity. The public health impacts of living in slums extend from high mortality from preventable causes of illness to a host of disabilities such that people's ability to be active, productive and prosperous members of society is severely compromised. Disaggregated urban data (where available) show that infant and under-5 mortality rates for the poorest slum residents are often higher than those found amongst similar groups in rural areas (APHRC 2002; United Nations Human Settlements Program 2003).

Nairobi is experiencing an urban population boom, with the attendant increases in poverty and health-outcome disparities, typical of many other major cities in sub-Saharan Africa. Between 1962 (just after independence) and 1999 its population grew more than sixfold, from 350 000 to 2.3 million (Central Bureau of Statistics (CBS), Government of Kenya 2001). More than 60% the city's population currently live in slum communities, which occupy only 5% of the residential land area (Matrix Development Consultants 1993). The infant mortality rate (IMR) of 91 of 1000 in the Nairobi slums is higher than in any other region in Kenya. Likewise, the slums' under-5 mortality rate of 156 of 1000 is higher than that of any other urban site in Kenya (APHRC 2002).

Although excess child morbidity and mortality in the slums is mostly a result of constant exposure to infectious environmental agents and household socio-economic differentials, it is likewise affected by health-seeking behaviours (Timus & Lush 1995). Such associations between behaviour and health outcome enhance the viability of reducing the occurrence of life-threatening diseases through improved child health care practices, even among the urban poor.

Related to perceived illness severity, maternal recognition of certain signs and symptoms of child illness has been cited as a critical factor determining health care-seeking behaviour (Yoder & Hornik 1996; D'Souza 1999; Goldman & Heuveline 2000; Amarasiri de Silva *et al.* 2001). Hill *et al.* (2003) argue that health beliefs are important barriers to care seeking in addition to the maternal ability to recognize symptoms. In their study in rural Ghana, only half of the illness episodes recognized as 'severe' were taken to a health facility. Some illnesses are categorized as 'not-for-hospital'. Additionally, past experience with similar illnesses can motivate mothers to play a 'waiting game' to see if the illness recedes on its own, particularly in situations where the cost of care is inhibitory (D'Souza 1999). Such health beliefs are predicted by household size and the age and education of the mother. Lack of access to and the high cost of health care are perhaps the most common deterrents to optimal health care seeking in both rural and urban communities (Tarimo *et al.* 2000; Thind & Andersen 2003; Thind & Cruz 2003).

Data on factors that affect slum dwellers' child health care seeking in sub-Saharan Africa are scarce. We assessed such socio-demographic, economic and disease-related factors among residents of two slums in Nairobi, to provide strategic guidance for the forthcoming child survival project under the Nairobi Urban Health and Poverty Partnership (NUHPP), coordinated by the APHRC, and to improve health care seeking among poor urban communities in general.

Study population and methods

The data for this study comes from the Nairobi Urban Demographic Surveillance System (NUDSS), which has been run by APHRC in two slum areas of Nairobi, Korogocho and Viwandani, since August 2002. Every 4 months, NUDSS collects data from about 60 000 residents (in 23 000 households) on demographics (births, deaths and migration), health (morbidity and verbal autopsy) and livelihood. This paper presents an analysis of child (under 5 years) morbidity data collected using structured survey questionnaires during one of the survey rounds. Data were collected from 15 174 households, where 3015 under-5s lived.

Information on child morbidity was collected for all children who were reported to have been ill or injured in the 2 weeks preceding a visit to that household. Details about child morbidity (illness/injury) including signs and symptoms, perceived severity and treatment-seeking behaviour were collected using child morbidity interview questionnaires adopted from the UNICEF multiple indicator cluster survey (MICS2) and the WHO Integrated Management of Childhood Illness (IMCI). Mothers or other caretakers provided the information. Data was collected using a pre-tested questionnaire written both in English and Kiswahili.

Major socio-demographic and economic correlates of health care seeking, such as child age and sex, maternal age, ethnicity, religion, education and work-status; and household income and expenditure levels. Health care seeking was defined as any attempt made by the mother (or caretaker) to obtain an expert opinion or treatment from a biomedical health care provider outside the home during the child's illness/injury. Severity of child illness was assessed using alternative responses which sought the mother's/caretaker's subjective evaluation. Statistical analysis was done using SPSS10 for Windows. Chi-squares, odds ratios (OR) and 95% confidence intervals (CI) were calculated for independent predictors of health-seeking behaviour. Logistic regression was used to calculate adjusted ORs.

Results

General

Of the 3015 children under 5 who were visited for the morbidity survey, 999 (33.1%) were reported to have been sick within the 2 weeks before the survey. Of these, 519 (52%) were males. Most reported illness symptoms involved the respiratory (63.8%) and gastrointestinal (47.6%) systems. Coughing (58.1%) was the most commonly reported symptom, followed by fever (50.8%), watery diarrhoea (36.4%) and vomiting (33.0%).

Health care was sought outside the home for 60.5% of the sick children. Lack of money (49.6%) and a perception that the illness was not serious (28.1%) were the main reasons behind the failure to seek health care outside the home. Private clinics and drug shops/chemists within the slum were the most popular destinations for child health care seeking; second most popular were clinics run by faith-based institutions. Public clinics and hospitals are not primary sites for health care seeking by slum residents because they are mostly found outside these communities.

Child factors

Figure 1 shows the influence of child age and sex on health care seeking. Health care seeking was highest for the youngest age group (62.9%) and slowly declined thereafter for older groups, where it reached 42.5% for children older than 4 years (OR = 2.29; 95% CI: 1.40–3.75; $P < 0.001$). Health care seeking for boys was slightly more likely than for girls, especially for children less than a year old, but this difference was not statistically significant.
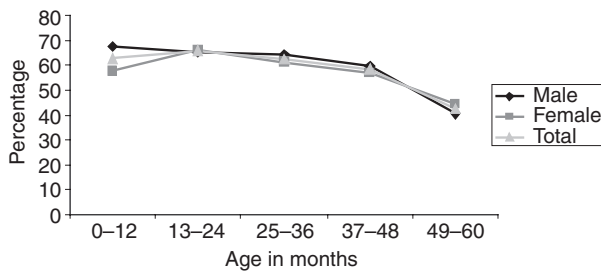
Figure 1 Health care seeking by age and sex of the child.

Illness factors

Just over one-third of the illness episodes were perceived as severe, 51.0% were seen as moderate and the remaining 14.8% were rated as minor. As a result, mothers/caretakers did not notice any interruption in normal activity (playfulness, alertness, going to school, etc.) in 466 (46.6%) of the sick children. The sick child reportedly remained in bed for 1–2 days in 43.7% of the cases. Figure 2 depicts the pattern of child health care seeking for different symptoms. Caretakers sought medical care more frequently for diarrhoea than for coughing (OR = 1.52; 95% CI: 1.14–2.02; $P < 0.01$) and this was also the case when both were accompanied by fever (OR = 1.61; 95% CI: 1.07–2.43; $P < 0.05$). In general, a child with diarrhoea was more likely to be taken for treatment than a child with a cough regardless of the level of perceived illness severity.

Maternal factors

Maternal age markedly affected decisions to seek health care outside the home. Mothers aged 35 years and older
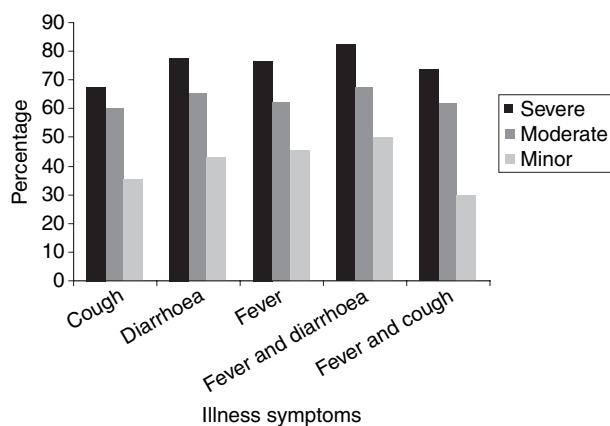

Figure 2 Child illness symptoms, perceived severity and health care seeking.

(43%) were less likely to take their sick children for health care than younger mothers (63%) (OR = 0.44; 95% CI: 0.25–0.78; $P < 0.01$). About 59% of mothers with primary education or less (434 of 732) took their sick children for health care, compared with 64.1% (161 of 251) of those with at least a secondary education ($P > 0.05$).

One-third of the mothers (317), mostly between 20 and 34 years old, were engaged in some form of income-generating activity within the last month. Two-thirds of these were small informal businesses, such as selling vegetables and food items. About 20% of mothers were casually employed. Maternal participation in income-generating activity was not significantly associated with more health care seeking for child illnesses.

Mothers belonging to the Kamba ethnic group (69.0%) took their sick children to health facilities more often than Luo (55.2%), Kikuyu (55.9%) and Luhya mothers (61.7%) [χ^2 (3) = 9.6; $P < 0.05$]. This is apparently because fewer Kamba women belonged to households in the lowest expenditure group, and because Kamba mothers more commonly lived in Viwandani, where the availability of jobs and social services is better. The Luo and Kikuyu mostly live in Korogocho.

The influence of household economic status on health care seeking for child illnesses was estimated using total monthly household expenditure data. In addition to being a proxy indicator of household income level, expenditure data was thought to minimize the chances of systematic bias involved in reporting income. Households were divided into three groups (low-, medium- and high-level spenders) according to their monthly expenditure: [<7431 Kenya shillings (Ksh); 7431–11 312 Ksh and >11 312 Ksh respectively]. One USD is equivalent to 75.0 Ksh, and the average household in the demographic surveillance area (DSA) is composed of three people. Figure 3 shows that household expenditure strongly influenced decisions to seek health care, especially if it was
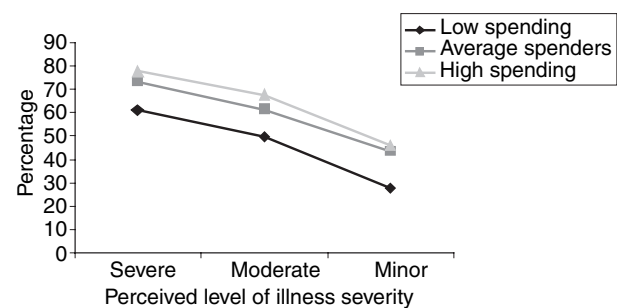

Figure 3 Monthly household expenditures, severity of child illness and health care seeking.

<7431 Ksh (OR = 2.2; 95% CI: 1.57–3.0; P < 0.001). There was no statistically significant difference between 'medium' and 'high-level spenders'. Sick children belonging to households with the lowest monthly expenditures were 20–30% less likely to be taken to health facilities, depending on the degree of perceived illness severity.

Table 1 shows the result of a regression analysis for most of the independent variables. Perceived illness severity, maternal age (beyond 35 years) and household expenditure levels were independently associated with health care seeking for child illness. Although the associations were not strong, child age (less than a year old *vs.* those above 4 years) and maternal ethnicity (Kamba) also positively influenced health care seeking.

Discussions

At 60.5%, the level of health care seeking for child illness in this poor community is generally not that low, although one can question the quality and effectiveness of the health care in averting child death and disability. Of the predictors assessed by the study, lack of money was the most important factor for not seeking health care. Related to this variable is the low level of household expenditure, and hence low income, which considerably limited health care seeking, irrespective of illness severity. Health care seeking was strongly related to particular illness symptoms and their perceived severity. For example, mothers tended to be more sensitive to diarrhoeal symptoms than coughing and the difference was even more pronounced when both symptoms were associated with fever. Child age was another important predictor of health care seeking, as mothers were generally more likely to seek health care for younger children. Finally, maternal age acted as a strong predictor of health care seeking after 35 year of age, as these older mothers were less likely to seek health care for their children.

The study implies that the optimal level of child health care seeking (Figure 3) may be achieved if household

Table 1 Logistic regression analysis of factors influencing health care seeking for child illnesses in Nairobi slums, Kenya, 2004

Variables	N = 999 (100%)	Odds ratio	95% confidence interval
Child age (months)			
0–11	175 (17.5)	1.0	
12–24	325 (32.5)	1.16	0.77–1.73
25–36	203 (20.3)	1.08	0.7–1.68
37–48	169 (17.0)	0.94	0.59–1.50
49–59	127 (12.7)	0.51	0.31–0.84**
Child sex			
Male	519 (52.0)	1.17	0.89–1.53
Female	480 (48.0)	1.0	
Maternal education			
No education/primary	732 (73.2)	0.91	0.67–1.25
Secondary and above	267 (26.8)	1.0	
Illness severity			
Severe	342 (34.2)	4.02	2.63–6.12**
Moderate	509 (51.0)	2.41	1.63–3.56**
Minor	148 (14.8)	1.0	
Maternal ethnicity			
Luo	277 (27.7)	1.0	
Kamba	155 (15.5)	1.75	1.12–2.27*
Kikuyu	252 (25.2)	1.08	0.75–1.57
Luhya	188 (18.8)	1.39	0.93–2.07
Others	127 (12.7)	1.59	0.99–2.56
Maternal age (years)†			
Below 20	92 (9.3)	1.02	0.63–1.65
20–34	786 (80.0)	1.0	
35+	105 (10.7)	0.51	0.33–0.79**
Household expenditures (Ksh)†			
<7430	316 (33.0)	0.63	0.46–0.88**
7431–11 232	316 (33.1)	1.0	
>11 233	325 (33.9)	1.20	0.86–1.68

* P < 0.05, **P < 0.01.
† Missing cases.

income (expenditure) could be improved to a certain threshold level after which substantial and linear growth in health care seeking may not be observed (Navarro-Rubio *et al.* 1995; Leyva-Flores *et al.* 2001). Improving the livelihood of poor households and increasing equitable access to basic childcare services (e.g. IMCI programmes) would thus be a beneficial social development endeavour in the slums. APHRC's field experience indicates that, compared with residents in other parts of Nairobi, slum residents often pay more than what similar services would normally cost elsewhere in the city and receive worse quality of care from private health care providers. For this reason, mothers usually wait and observe the child for quite sometime before they visit these facilities, while they would mostly raise funds. Owing to the doubtful efficacy of the treatment they receive from private clinics or drug shops, mothers keep on visiting a number of them until they see improvement in child health, their funds are exhausted, or the illness gets so complicated that the child dies. Referrals to public health facilities normally take place once the illness is complicated. Overburdened by resource limitations and management inefficiencies, public health facilities have less to offer in averting the needless death that children in the slum communities are faced with.

The Kenyan Government is planning to implement a National Social Health Insurance Fund (NSHIF), which intends to provide free primary health care services including IMCI programmes in all dispensaries and health centres nationwide (Republic of Kenya 2004). Poor households in rural areas and slum communities are expected to greatly benefit from this scheme. However, equitable benefits from this programme may not be realized until it is clearly financially sustainable and until chronically disabled health services are revitalized. This revitalization will require improving management of services and quality of care and refurbishing health centres with essential drugs and medical equipment.

Although maternal perceived illness severity was widely believed to influence decisions to seek health care (Goldman & Heuveline 2000; Goldman *et al.* 2002; Pillai *et al.* 2003), other research findings cast doubt on the reliability of its recognition and interpretation (Herman *et al.* 1994; Hill *et al.* 2003). In a study from Egypt (Herman *et al.* 1994), mothers were read brief descriptions of hypothetical cases and asked how they would recommend treating the children in each situation. Results were compared with repeated care-seeking practices during acute respiratory illness (ARI) episodes that occur in their own children. Although mothers generally recognized the danger signs in child illness, they did not use their recognition to take appropriate action. Community-based intensive behavioural communication strategies complementing clinic-based IMCI programmes

can reinforce mothers' perception of illness severity and enhance their cues to appropriate action (Hill *et al.* 2003).

Qualitative studies may be required to understand why mothers were more likely to seek health care for children with gastrointestinal symptoms (diarrhoea) than those suffering from cough. Diarrhoea accompanied with fever was taken more seriously than cough with fever. Goldman and Heuveline (2000) and Tarimo *et al.* (2000) found similar responses among Guatemalan and Tanzanian mothers, respectively. One possible explanation is that the rampant respiratory illnesses in the slum lead mothers to assume each episode to be just like another one in the past. Mothers' recognition of danger signs and skills to seek prompt and appropriate treatment of pneumonia, the number one child killer in Nairobi slums, must be enhanced through community-based IMCI programmes.

Older mothers took their sick children to health facilities less frequently than younger mothers, perhaps because they tend to have more young children and hence are unable to prioritize or they are inclined to use their experience and customs in child rearing which emphasize the role of alternative therapies.

In conclusion, the study points to a number of short-term policy and programme implications to improve quality of life for slum residents. Access to child health services in the slums can be improved through working in partnership with private health care practitioners and community-based organizations (CBOs), particularly in the area of skills enhancement, supply of resources and supportive supervision. Complementary introduction of community-based IMCI programmes will increase caretaker's ability to recognize danger signs in child illnesses and facilitate behaviour change in health care seeking. It is likely that poor Kenyans might wait for years to fully benefit from the planned health insurance scheme. In the meantime, there is a dire need to improve the income base of slum dwellers such that they will manage to overcome the economic obstacles to seek basic child health care.

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